Amendments to the Specification:

Page 1, lines 10-16, (paragraph [0002] of the publication), replace the paragraph with the following:

Recently a method for measuring brain activity in a noninvasive manner and for analyzing brain function has been conceived and various devices or systems for the method have been developed. For example, fMRI (functional magnetic resonance imaging) and NIRS (near-infrared spectroscopy) are representative examples of a method for mapping brain function. ~~(Refer to, for example, non-patent document 1.)~~ See, for example, Raichle, Marcus E., "A Brief History of Human Functional Brain Mapping" *Brain Mapping, The Systems*, Academic Press, 2000, p. 64-65.

Page 1, line 17, to page 2, line 15, (paragraph [0003] of the publication), replace the paragraph with the following:

The fMRI is primarily based on a BOLD effect that measures a change of signal intensity of MRI based on a fluctuation of deoxygenated hemoglobin (Deoxy-Hb) value of blood in a brain and images it so as to monitor a local brain activity. The fMRI specifies an activated portion from a brain functional image obtained with an extremely high space resolution such as a mm order. In the meantime, the NIRS is to irradiate near-infrared pulse light of a predetermined wavelength on a head portion of a subject through a probe for irradiation (optical fiber) and to detect the corresponding near-infrared light diffused from the brain with a high time resolution such as several tens of milliseconds through a probe for detection (optical fiber). More specifically, oxygenated hemoglobin concentration, deoxygenated hemoglobin concentration and a total hemoglobin concentration of blood in a brain are measured by transmitting near-infrared light through a probe connected to a holder mounted on the head portion of the subject by making use of the near-infrared light having a wavelength that penetrates a skin tissue or a bone tissue and that is absorbed by oxygenated hemoglobin or deoxygenated hemoglobin of the blood, and a brain activity of the subject while exercising or in a stationary state is measured or imaged with a high time resolution by means of a blood circulation kinetics change in the brain of the

subject derived from a diachronic concentration change. ~~(Refer to, for example, patent document 1.)~~ See, for example, Japanese Patent Specification 2002-128107.

Page 2, delete lines 16 to 22 (paragraphs [0004] to [0008] of the publication)

Page 2, line 23, to page 3, line 10, (paragraph [0009] of the publication), replace the paragraph with the following:

The fMRI is superior in a space resolution as mentioned above, but inferior in a time resolution since, at most, only a piece of an image can be imaged in a few seconds ~~at most~~. In addition, in order to conduct the fMRI a subject is encased in an almost blocked system and a brain activity of the subject is measured in the system, which makes it difficult to measure the brain activity of the subject, for example, during an exercise with moving his or her body. Further, nowadays the BOLD effect itself ~~that~~ is the fundamental principle of the fMRI ~~is being~~ under review. On the other hand, the NIRS is, as mentioned above, superior in a time resolution and the subject can be monitored in either an unconstrained condition or a constrained condition, however, the monitoring depends on a position where a probe is mounted, thereby performing a low space resolution of a few cm order at most.

Page 3, lines 11-19, (paragraph [0002] of the publication), replace the paragraph with the following:

Based on the above-mentioned problem, it might be assumed mistakenly that merely combining the fMRI and the NIRS, in other ~~word~~ words, just checking both results of the fMRI and the NIRS, covers each weak point and a result of measuring brain function is superior both in the time resolution and the space resolution. However, since it is unclear that results of the fMRI and the NIRS always correspond with each other, merely combining both of the fMRI and the NIRS does not produce an agreeable result.

Page 10, line 18, to page 11, line 15, (paragraph [0031] of the publication), replace the paragraph with the following:

In the fMRI mapping step S1, a predetermined task is performed by a subject TP inside an MRI system and an image of an active state of a whole brain BR of the subject TP is taken like the ordinary fMRI mapping method. FIG. 2 is a brain functional image IMGf obtained as a result of a test "binocular rivalry" wherein different images are shown to each of right and left eyes of the subject TP respectively. Since a body of the subject TP is fixed in the MRI system, the subject TP puts on a pair of glasses GR (refer to FIG. 7) in order to show the different image to each eye. The brain functional image IMGf is obtained as a three-dimensional image. FIG. ~~7~~2 shows a state of the brain BR of the subject TP viewed from a right side. A ~~colored~~ gray-scaled portion in the brain functional image IMGf shown in FIG. ~~7~~2 is an activated portion AP of the brain BR. A portion where ~~a color~~ the gray is deeper shows that the brain BR activity is higher. More specifically, a rough position of the activated portion AP of the brain BR activated by a predetermined stimulus can be obtained in the fMRI mapping step S1. In this case for displaying the brain functional image IMGf, a denoted area of the activated portion AP can be varied by determining a threshold at discretion, wherein the bigger a statistical screening value (p value) used as a threshold is, the smaller a denoted area of the activated portion AP becomes, conversely the smaller the p value is, the bigger the denoted area of the activated portion AP becomes.

Page 14, line 9, to page 15, line 1, (paragraph [0035] of the publication), replace the paragraph with the following:

In the optical probe mounting step S5, a marker MK nearest to the activated portion AP of the brain BR is selected and two marks (x mark in FIG. 6(a)) are put across the marker MK as shown in FIG. 6(a) based on the three-dimensionally combined image IMGfs obtained by the three-

dimensional image combining step S4. And then optical probes PR1, PR2 made of a pair of optical fibers that are to be utilized in the NIRS measuring step S6 are mounted at the two marked positions as shown in FIG. 6(b). One of the optical probes is the optical probe PR1 for irradiating the near-infrared light and the other is the optical probe PR2 for detecting the near-infrared light diffused from the brain BR. In this embodiment, the optical probes PR1, PR2 are embedded into the headgear HC across a marker MK with an interval of approximately 2 cm, however, the positions where the optical probes PR1, PR2 are embedded can be determined ~~with enjoined~~ by a physical position of the marker MK, a position or a shape of the activated portion AP of the brain BR, a positional relationship with other adjacent optical probes or a theoretical analysis result of brain optical propagation.

Page 16, line 23, to page 17, line 11, (paragraph [0039] of the publication), replace the paragraph with the following:

As mentioned above, the present claimed invention is to obtain the brain functional image of the subject in advance by the fMRI, to manufacture the headgear to each subject, to obtain the head portion structural image with the MRI system in a condition that the subject puts the headgear on, to make a three-dimensionally combined image by combining the brain functional image and the head portion structural image three-dimensionally, to mount the optical probe at a portion of the heat gear near the activated portion of the brain determined by the brain functional image based on the three-dimensionally combined image and to conduct the MIRS measurement with the headgear put on. In accordance with the present claimed invention, the high space resolution based on the fMRI measurement and the high time resolution based on the NIRS measurement can be ~~compossible~~ combined and the brain function at the activated portion of the brain activated by the stimulus can be mapped with an extremely high accuracy.